

ASSESSORS' HANDBOOK
SECTION 543

ASSESSMENT OF WATER RIGHTS

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CALIFORNIA STATE BOARD OF EQUALIZATION

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FOREWORD

The subject of water rights is not well understood by many people, and consequently it is one of considerable controversy. Questions are frequently asked by assessors as to the nature of water rights, legal provisions relating thereto, and appropriate methods for their appraisal. This handbook has been prepared to present in a concise manner information relating to the nature of water rights, means of identifying their ownership, quantity and quality, and some methods for appraising them for assessment purposes.

Most water rights in California can be grouped into three main categories, namely, riparian, overlying, and appropriative. However, two other types of water rights that are recognized—pueblo and prescriptive—are ones with which the appraiser should be conversant. The appraiser should also understand that the term adjudicated water rights has reference to one or more of the preceding types that have been modified or defined by the State Water Resources Control Board and/or court action. The goals of this handbook are to help the appraiser identify the type of water right that exists and to provide the basis for making an appraisal. The magnitude of water rights varies considerably, from small diversions for domestic use at one home to diversions for irrigation of many hundreds or thousands of acres. Also, there are entities such as municipalities, public water districts, and irrigation districts whose water rights are exempt from taxation. Hopefully, the handbook will be of assistance to the assessor in insuring that all taxable water rights are assessed and included on the tax roll.

This handbook was prepared by Robert R. Forsberg, Senior Industrial Appraisal Engineer on the staff of the Assessment Standards Division, was reviewed by members of the staff of the State Water Resources Control Board and by the Standards Committee of the State Association of County Assessors, and was approved by the Board of Equalization on February 18, 1971. Portions of Chapters I and II were adapted from *California Law of Water Rights*, by Wells A. Hutchins. This book is recommended to those who wish to study a more comprehensive treatment of this subject.

Jack F. Eisenlauer, Chief
Assessment Standards Division
February 1971

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CHAPTER 1: DEFINITIONS OF WATER RIGHTS

Water rights are referred to by various terms. The terms used and recognized in California law and court decisions are: riparian, overlying, appropriative, and pueblo. “Prescriptive rights” and “adjudicated rights” are terms that do not belong to the same series as the foregoing; they describe means of obtaining rights and may be applicable to any kind of water right. The terms describing the rights and means of acquiring them will be discussed individually in the following paragraphs.

RIPARIAN RIGHT

There is no California statute defining riparian rights, but a modification of the common law doctrine of riparian rights has been established in this state by decisions of the courts and confirmed by the provisions of section 3, article XIV, of the State Constitution (Water Code sections 100, 101). Lands which are contiguous to a natural stream (underground or surface) or lake and are within its watershed are, with certain exceptions and limitations, riparian. Each owner of riparian land has a right which is correlative with the right of each other riparian owner to share in the reasonable beneficial use of the natural flow of water which passes his land.

No permit or formal document is required for use of riparian water. A riparian right exists by reason of ownership of land abutting upon the stream or body of water and affords no basis for a right to use water upon nonriparian land. As between riparian owners, priority of use establishes no priority of right, and the riparian right is neither by use nor lost by nonuse. A parcel of land loses its riparian right when severed from land bordering a stream or lake by conveyance unless the right is reserved for the severed parcel. The riparian right may also be destroyed when purportedly transferred apart from the land by grant, contract, or condemnation. Once lost, it cannot be restored.

The riparian right does not apply to foreign water, i. e., water originating in a different watershed cannot be used under claim of riparian right. Also, water cannot be stored in one season and withheld for a deferred use in another season under claim of riparian right. Temporary detention of water in a forebay for power, mill, or similar purposes can be included in a riparian use.

OVERLYING (CORRELATIVE) RIGHT

The status of the owner of land overlying a body of underground water is similar to that of the riparian landowner relative to surface water. Underground water such as water percolating through a ground water basin is not subject to appropriation by permit from the state (an underground **stream** is, however, subject to riparian use or appropriation). Owners of land overlying a ground water basin or other common source of supply have the first right to withdraw water for reasonable beneficial use on their overlying lands in the absence of prescriptive rights. The right of each owner is equal to and correlative with the right of all the other owners similarly situated; and, in the case of insufficient water to supply the requirements of all, the available

supply may be equitably apportioned. This is normally done either by agreement among the parties, or by adjudication. In these respects, overlying rights are similar to riparian rights pertaining to surface bodies of water.

Surplus water which is not presently required for beneficial use on overlying lands and which may be withdrawn without creating an overdraft on the ground water supply may be captured for use on nonoverlying lands subject, however, to future requirements for overlying lands. As between such users, the first in time is the first in right and a prior user is entitled to all the water he needs up to the amount that he has taken in the past before a second user may take any in the absence of prescriptive rights.

APPROPRIATIVE RIGHT

A person or other legal entity may require a right to the use of surplus water for the irrigation of a particular tract of land or for other beneficial purposes by performing certain acts required by law. Prior to 1872, appropriative water rights could be acquired by simply taking and beneficially using the water. In 1872, Sections 1410 through 1422 of the Civil Code were enacted. These sections established a permissive procedure for perfecting an appropriation of water. Provision was made for posting a notice of appropriation at the proposed point of diversion and recording a copy thereof with the county recorder. If this procedure was followed and appropriation was completed with diligence, priority of the right went back to the date of posting.

Once acquired, an appropriative right can be maintained only by continued beneficial use of water. Therefore, regardless of the amount claimed in the original notice of appropriation or at the time the diversion and use first began, the amount which can now be rightfully claimed under an appropriative right initiated prior to December 19, 1914, is in general fixed by the previous history of actual beneficial use as to both amount and season of diversion.

An appropriation of water which began subsequent to December 19, 1914, the effective date of the Water Commission Act, requires compliance with the provisions of Part 2, Division 2 of the Water Code. In general, this consists of filing an application with the State Water Resources Control Board. If a determination is made that there is unappropriated water available, and the proposed use is beneficial, a permit is issued. The appropriation of water is perfected by the person or legal entity applying the water to beneficial use. Upon completion of the project, the board examines the works and use of water to determine compliance with law and administrative requirements. If the findings are favorable the board issues a license to the permittee, which defines the right to divert and use the water to the extent the appropriation has actually been completed. Information on appropriative water rights initiated subsequent to December 19, 1914, is of record with the State Water Resources Control Board in Sacramento.

The land to which the appropriate right relates may be either contiguous to the stream or located at a distance from it. In fact, it may lie in a different watershed.

When a supply of water to which several appropriative rights are attached is not enough to satisfy all of them, the earlier rights have preference over the rights of later date (unless a permit or license expressly provides otherwise). Each right is entitled to its full quantity of water before any water may be taken for rights that are later in time. This superiority over later rights is called the priority of an appropriative right. An appropriative right initiated prior to December 19, 1914, can be lost after a continuous nonuse of five years. Appropriative rights issued subsequent to December 19, 1914, can be lost after three years of nonuse (Water Code section 1241).

PUEBLO RIGHT

The pueblo water right is the paramount right of a California city which is the successor of a Spanish or Mexican pueblo (municipality) to the use, by the inhabitants of the city, of water naturally occurring within the old pueblo limits. This right attaches only to waters naturally in the watershed (including tributary percolating ground water) of the stream flowing through the pueblo and does not attach to water brought into the area from other contributory watersheds. The pueblo right extends to as much of the waters of the stream as are required for the expanding needs of the city. Such a right is superior to all other rights. Los Angeles and San Diego are the only cities in California that have adjudicated pueblo water rights.

PRESCRIPTIVE RIGHT

An appropriator may possibly divert to his own use water to which riparian or overlying landowners or appropriators have prior claims, thereby depriving them of the use of water to which they are entitled. If this is done without interruption for a period of five consecutive years prescribed by the statute of limitations, and if certain other legal requirements are fulfilled, a "prescriptive right" against the parties whose rights have been invaded may be established. A prescriptive right that has not been adjudicated is sometimes called an "inchoate" prescriptive right.

As adjudicated prescriptive right gives the holder authorization, so far as the parties he has dispossessed are concerned, to continue diverting and using the water to the extent to which it has been used throughout the five-year period.

A well-established rule is that a prescriptive water right cannot be acquired against an upstream user. This is because the upstream user has first use and control of the water. Under these circumstances it would be difficult, if not impossible, for a downstream user to interfere with the water use (one of the requirements for prescription) of an upstream diverter. The only exception to this rule is where the downstream user actually diverts water from a point on the upstream land.

Prescriptive rights are probably most common in the southern, more arid regions of the State, although they also may be found in other regions. In this regard it may be well to mention some of the conditions and ramifications of prescriptive rights in ground water basins. In the court case

of *City of Pasadena v. City of Alhambra* (1949) 33 Cal. 2d 908, it is stated that a prescriptive right arises when:

. . . use is actual, open and notorious, hostile and adverse to the original owner, continuous and uninterrupted for the statutory period of five years, and under claim of right.

The court further elaborated on the conditions for prescription in a ground water basin as follows:

Where subsequent appropriators (non-overlying users) reduce the available water supply of an underground basin and their acts, if continued, will render it impossible for the holder of a prior right to pump in the future, there is an enjoined invasion.

Each taking of water in excess of the safe yield, whether by subsequent appropriators or by increased use by prior appropriators, was wrongful and was an injury to the then existing owners of water rights, because the overdraft, from its very beginning, operated progressively to reduce the total available supply.

The injury thus did not involve an immediate disability to obtain water, but rather it consisted of the continued lowering of the level and gradual reducing of the total amount of stored water, the accumulated effect of which, after a period of years, would be to render the supply insufficient to meet the needs of the rightful owners.

Recognition of the beginning of an overdraft condition is not always immediately apparent because of fluctuation in hydrologic conditions. In fact, conditions for prescription may not be brought to light until litigation is initiated by an existing owner of a water right. By this time prescriptive rights may already have been established.

An unadjudicated or inchoate prescriptive right is only a claim of right, and whether it has achieved sufficient stature to warrant being treated as a property right subject to separate assessment and capable of valuation will depend on the facts and circumstances of each case. Since the court clearly stated, in *Pasadena v. Alhambra*, that it is necessary to have a claim of right in order to perfect a prescriptive right, the problem of determining when to commence an assessment is not so important. The assessment on the existing right may be modified when the person claiming a prescriptive right has clearly taken the steps necessary to perfect it or when it has been adjudicated by a court. The junior or most recent users of water from an overdrawn ground water basin may have rights of questionable validity, particularly when the use has been for less than five years. These users are not legitimately appropriating since surplus water does not exist and their use may be legally terminated before the 5-year prescriptive period has been completed.

ADJUDICATED RIGHT

An adjudicated water right is one that has been established or defined by statutory and/or court proceedings. Such proceedings are normally initiated when there is an overdraft condition in a ground water basin or there is insufficient water in a stream or stream system for all uses.

There are two ways to initiate adjudication proceedings. One is to file an action directly in superior court, which court, in its discretion, may refer the matter to the State Water Resources Control Board for investigation as referee. This procedure may be utilized for either surface or ground water sources.

The other adjudication procedure is termed a statutory adjudication. Sections 2500 to 2900, inclusive, of the Water Code authorize a proceeding for the determination of all rights to water of any surface stream or body of water. The right to take water of any surface stream or body of water. The right to take water from an underground supply, other than from a subterranean stream flowing through known and definite channels, cannot be determined by this procedure. The proceeding is initiated through the State Water Resources Control Board, but is subsequently submitted to the superior court for final determination.

An adjudicated water right confirmed by a court judgment may or may not be a property right separate from the land on which it is used and thus subject to separate assessment. Frequently, the judgment merely fixes the maximum quantity any particular producer may extract from the ground water or surface supply. For example, an overlying or riparian owner who prior to the judgment had the right to extract an indefinite quantity of water limited only by his ability to make a reasonable beneficial use of it on his overlying or contiguous land has, pursuant to a court decree, had his right limited to a specific quantity. Such decisions are not helpful in determining the place of use, the point of diversion, the manner of extraction, or other such matters. Lacking judicial guidance or specific statutory direction, it cannot be stated with any certainty whether or not an adjudication as to quantity has any effect on these other aspects of a water right. If, for instance, an overlying or riparian owner's water remains appurtenant to his land, it probably is not separately assessable from his land. If, on the other hand, such a right after adjudication becomes severable from the land and freely transferable, the water right would appear to be subject to separate assessment.

CHAPTER 2: WATER SUPPLIES AND WATER USES

TYPES OF WATER SUPPLY

A concise description of the various type of water supplies may be found in the California Agricultural Experiment Extension Service's Circular 452: *Irrigation Water Rights in California*," by Wells A. Hutchins (p.6). These water supplies are defined as follows:

A watercourse comprises (1) a natural stream of water (2) flowing in a definite natural channel (3) from a definite source or sources of supply. It includes both the surface and the underflow.

It is not necessary that the stream shall flow constantly. The requirements of a watercourse are satisfied even if the stream flow is intermittent, provided that that is characteristic of streams in the general area.

A watercourse, includes connected springs, lakes, ponds, sloughs, and tributary streams.

A watercourse is distinct from water flowing vagrantly over the surface of the ground from a temporary source such as local rainfall. Such water is called diffused surface water.

Ground water is water in the ground that is capable of being extracted by pumping or otherwise. In California water law, ground water is divided into (1) definite underground streams and (2) percolating waters.

A stream of water of flowing through the ground in a known and definite underground stream or defined underground stream. It has the same essential features as a surface watercourse, except that that is buried in the ground.

The underflow or subflow of a surface stream comprises the ground water flowing in the same direction as the surface water and in intimate contact with the surface flow. It is one phase of the term definite underground stream.

Water flowing slowly through the soil, not a part of any definite underground stream, is called percolating water. Percolating water may or may not be under artesian pressure.

A spring is a place where water issues naturally from the ground upon the surface of the earth.

Water brought into one watershed from another watershed is called foreign water.

The portion of a supply of foreign water that escapes or is released from the lands or works of the water user into a natural channel is return flow from foreign water.

RECOGNIZED BENEFICIAL WATER USES

It has long been the law in California that the use of water under an appropriation or any other type of water right must be not only beneficial but also reasonable. In 1928 the California voters adopted an amendment to the State Constitution (article XIV, section 3) relating to water rights and uses of water. The amendment provides that water rights in water courses or other naturally-occurring waters are limited to the quantities of water reasonably required for the beneficial uses to which the rights relate. Such rights do not include (1) waste of water, (2) unreasonable use, (3) unreasonable methods of use, or (4) unreasonable methods of diversion of water. Riparian owners are held to the same standards of diversion of water. Riparian owners are held to the same standards as appropriators with relation to reasonable use of water. It should be pointed out that what is considered reasonable and beneficial use in one area is not necessarily the same in another. Each case is determined on its own merits.

Water may be put to any use that is beneficial. The Water Code declares that the established policy of the State is that the use of water for domestic purposes is the highest use and that the next highest use is for irrigation (Water Code Section 106). Some of the more common uses of water are listed as follows.

- Domestic
- Municipal
- Irrigation
- Power
- Industrial
- Recreational
- Mining
- Stock watering

CHAPTER 3: LEGAL PROVISIONS

WATER CODE

In 1943 the California Legislature passed an act consolidating and revising many of the then existing statutes relating to water. This act is called the Water Code. It has been amended and enlarged at succeeding sessions of the Legislature. The portions of the Water Code that relate to water rights are:

- Division 1 - General State Powers over Water
- Division 2 - Water
- Division 3 - Dams
- Division 4 - Wells, Pumping Plants, Conduits, and Streams

ADMINISTRATION OF WATER RIGHTS

The administrative powers or duties prescribed by Divisions 1, 2, and 3 of the Water Codes are vested in the State Department of Water Resources and the State Water Resources Control Board.

Division 2 contains the procedure for the appropriation of water, for the determination of water rights, and for the distribution of water in watermaster service areas. The procedures for appropriating water under the Water Code applies to surface streams, lakes, and other surface bodies of water, and to subterranean streams flowing in known and definite channels.

The State Water Resources Control Board has adopted rules and regulations pertaining to its administrative functions under the Water Code. They were published in pamphlet form in 1968 under the following titles: *Regulations and Information Pertaining to Appropriation of Water in California*, *General Information Pertaining to Water Rights and Hearings*, and *Regulations and Information Pertaining to Determination of Rights to the Use of Water in California*.

Court decisions are also part of the state law. They must be taken into consideration in evaluation of water rights in some instances.

STATUS OF WATER RIGHTS AS REAL PROPERTY

For purposes of taxation, water rights constitute land as that term is used in Article XIII, Section 1, of the State Constitution (*Waterford Irrigation District v. County of Stanislaus*, 102 Cal.App.2d 839; *Alpaugh Irrigation District v. County of Kern*, 113 Cal.App.2d 286; *San Francisco v. Alameda County*, 5 Cal. 2d 243).

Water rights acquired by a public agency outside its boundaries are subject to taxation if the water rights were taxed prior to their being acquired by the agency or if they were taxed on the lien date in 1967 (Sections 1.60 to 1.69 of Article XIII, California Constitution).

A pueblo right can only be held by a municipality and is therefore not taxable. In fact, any type of water right held by a public agency is not taxable with the exceptions noted in the preceding paragraph.

SITUS

An important consideration in the taxation of water rights is the situs of a right. In the case of riparian and overlying rights, the situs of the water right is identical to the situs of the land, and the land and the water rights should therefore be valued together following accepted appraisal procedures.

A California court has held that the situs of appropriative rights is at the point of diversion of the water (*North Kern Water Storage District v. Kern County*, 179 Cal.App.2d 268). The argument that the right had its situs at the place of use was rejected on the ground that the right to control the water in a river is exercised at the point of diversion.

In some cases the water is transported some distance from its point of diversion from its natural channel to its point of use. The court has held that the point of diversion is also the situs for taxation, and that the tax situs is not where the water is received and measured by the owner (*Jurupa Ditch Co., Inc. v. County of San Bernardino*, 256 A.C.A. 50).

Appropriative rights to both surface and ground water generally cover uses of water on land at a distance from the water source. Under this circumstance the water right is appraised at the point of diversion, separately from the land where the water is used. A prescriptive water right could be, for assessment purposes, either valued along with and included in the land value or valued separately, depending on the conditions. If the land served by the prescriptive right is at a distance from the point of diversion, separate assessments are generally advisable.

SEPARATE ASSESSMENT OF DAMS, CANALS, FLUMES, PIPES, ETC.

The appraiser may have, in connection with a water right, some question as to the assessment of dams, canals, flumes, pipes, etc. In general, where there is a reshaping of land or an adding to land itself, that portion of the property relating to the reshaping or adding is land. However, where a substantial amount of materials other than land, such as concrete, is added to the excavation, both the excavation and the added materials are improvements (Cal. Adm. Code, Title 18, Sec. 121 and 122). Therefore, improvements necessary to exercise a water right should be assessed separately from the water right.

CHAPTER 4: DETERMINING THE NATURE AND EXTENT OF WATER RIGHTS

In the appraisal procedure it is necessary to determine the nature, extent, and validity of the water right that is to be appraised. A separate study and analysis of the water right need not be made if the water rights are riparian or overlying and are assessed with the land. If it is an appropriative right initiated subsequent to December 19, 1914, much of the information desired can be obtained from the files of the State Water Resources Control Board. If the right is one initiated prior to December 19, 1914, information may possibly be obtained from the files of the office of the county recorder in the county in which the property is located or from individuals familiar with the use of water over a number of years. Information on riparian and non-statutory appropriative water rights may also be available through the State Water Resources Control Board under provisions of the water use inventory law of 1965 (Water Code sections 5100-5108). In watermaster service areas the watermaster usually prepares an annual report that may be useful to the appraiser.

In appraising a water right the appraiser should make sure that all available information is obtained which may have a bearing on the value. Some of the important items of information are:

- The type of right in existence
- The quantity of water the right provides for
- The season of the year when the water can be legally taken
- The restrictions, if any, placed upon the right
- Data available concerning the cost of obtaining and developing the right
- Any records of sales of similar water rights
- Any alternate sources of water available and their estimated price or cost
- Reasonably accurate records of the quantities of water diverted over a period of several years
- Losses in transportation
- Income
- Operating expenses
- Amortization when applicable

CHAPTER 5: APPRAISAL OF WATER RIGHTS

GENERAL

The type of water rights as well as the common uses of water have been discussed previously. A corporate entity or an individual may own water rights as well as land and improvements. Not all water rights are taxable (see Chapter 3, “Status of Water Rights as Real Property” of this manual), but those that are must be appraised and their value added to the value of the individual's or entity's other property or included in a unit value in order to arrive at the total property value.

One or more of the standard approaches to value—cost, sales analysis, or capitalization of income—may be used in conducting the appraisal. Each water right is apt to differ somewhat from the next, and the approach that would apply to one may not necessarily be applicable to another.

In general, the value of water rights is conditioned upon:

- The possible quantity of water to be developed
- The accessibility of the water right
- The distance to the points where the water is to be utilized
- The relative costs of alternate sources of water for the local use or market
- The expenditures necessary to bring the water right into economic use
- Quality of the water
- The use to which the water is put
- The reliability of the water source
- Restrictions on the transferability or use of the water right

COST

The cost of a water right may be difficult to determine. In general, it should consist of an estimate of the sum of the filing fee for obtaining a permit or license, the attorneys' and other experts' fees necessary in obtaining the right, and expenditures for defending the right against encroachment by other water users. In some cases the water right may have been purchased from another owner. The purchase price would then be the cost. If the entity holding the water right is a public utility, the historical cost of the above elements should be used when available; otherwise, the historical cost should be estimated or reconstructed. Data on these items may be difficult to obtain, but larger water companies owning water rights should have this information well documented. If a water right has been in existence for many years, it is probable that the data on costs were not recorded and may be difficult or impossible to obtain. In any event, the effort should be made to

obtain this information. (See Assessors' Handbook 540C, *Valuation of Water Companies*, Section IV-B.)

Another means of estimating the value of a water right is to compute the value of the saving which can be attributed to possessing it. This saving is determined by comparing the replacement cost new of the present plant and the present worth of the total annual expense of delivery for the amount of water in question (including all operating and maintenance charges) with the corresponding expense for developing and delivering an equivalent amount of water from the least expensive substitute source to which the owner of the water right has access.

The capitalized difference between these two sets of expenses yields an estimate of the replacement cost of the water rights under appraisement. As in other appraisal areas, the value of the appraisal subject should not exceed this replacement cost. Care should be taken not to use a cost for alternate water that exceeds the maximum price the user could afford to pay and continue his use (assuming it is the highest and best use). Otherwise the value derived would be an incorrect value.

Let us consider two examples of the replacement cost method for appraisal of water rights. The first of these examples follows.

EXAMPLE I GOODWATER IRRIGATION COMPANY

Appropriative water right for diversion equals 36,000 acre-feet annually. (One acre-foot equals the equivalent of water one foot in depth spread over one acre, or 325,851 U.S. gallons.)

COST COMPARISON FOR ALTERNATE SUPPLY

Assumptions: Economic life = 35 years

Land requirement the same for both systems—not shown

	<u>Present System</u>	<u>Least Expensive Alternate Supply (Estimated)</u>
<i>DEVELOPMENT COSTS</i>		
Drilling and Casing 3 Wells		\$34,500
Pumps and Equipment		180,000
Distribution Pipe		80,000
Engineering		<u>28,000</u>
Amortization @ 14% (12% + 2% Taxes) TOTAL		\$322,500
$\frac{1}{\text{PW of 1 Per Annum}} = \frac{1}{7.070} \times \$322,500 =$		\$46,000
<i>ESTIMATED REPLACEMENT COST</i>		
Engineering	\$34,000	
Diversion Dam and Intake	75,000	
Main Conveyance System	150,000	
Lift Pump	50,000	
Miscellaneous Equipment	<u>41,000</u>	
Amortization @ 14% (12% + 2% Taxes) TOTAL	\$350,000	
$\frac{1}{\text{PW of 1 Per Annum}} = \frac{1}{7.070} \times \$350,000 =$		\$49,500
<i>EXPENSES (Annual)</i>		
Amortization	\$49,500	\$46,000
Power	17,500	39,600
Repairs	9,700	7,500
Supervision	12,000	12,000
Labor	<u>18,500</u>	<u>16,000</u>
TOTAL EXPENSES	\$107,200	\$121,100
<i>SAVING USING EXISTING RIGHT</i>		
Annual Saving in Expenses: \$121,100 - \$107,200		\$13,900
Present Worth in Perpetuity @ 14% (12% + 2% Taxes) = \$13,900 ÷ 0.14 =		99,300
<i>TOTAL SAVING AND WORTH OF WATER RIGHT (Rounded)</i>		<u>\$99,000</u>

EXAMPLE II MUNICIPAL WATER COMPANY

Overlying water right equals 18,000 acre-feet annually.

Assumptions: Economic life = 25 years

Land requirement the same for both systems—not shown

	Present System	Least Expensive Alternate Supply (Estimated)
ESTIMATED COST		
Legal Fees and Engineering	\$35,000	\$25,000
Drilling and Casing 4 Wells	40,000	—
Pumps and Equipment	225,000	100,000
Distribution Pipe	96,000	96,000
Office and Storage Structures	27,000	27,000
Miscellaneous Equipment	<u>15,000</u>	<u>15,000</u>
TOTAL	\$438,000	\$263,000

EXPENSES (Annual)

Amortization @ 14% (12% + 2% Taxes)

$$\frac{1}{\text{PW of 1 Per Annum}} = \frac{1}{6.873} \times \$438,000 = \$63,700$$

$$\frac{1}{\text{PW of 1 Per Annum}} = \frac{1}{6.873} \times \$263,000 = \$38,300$$

Power	21,000	6,000
Repairs	11,000	7,000
Supervision	21,000	21,000
Labor	36,000	36,000

Least Expensive Alternate Supply of Water, \$8 Per Acre-Foot

18,000 Acre-Feet x \$8

TOTAL EXPENSES	<u>\$152,700</u>	<u>\$252,300</u>
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SAVING USING EXISTING RIGHT

Annual Saving in Expenses: \$252,300 - \$152,700 \$99,600

Present Worth in Perpetuity @ 14% (12% + 2% Taxes)

$$= \$99,600 \div 0.14 = \text{711,400}$$

TOTAL SAVING AND WORTH OF WATER RIGHT (Rounded) \$711,000

SALES ANALYSIS

If the right is of such a character that similar ones are frequently exchanged, the market value can be estimated by analyzing sales. Unfortunately, rights typically are uncommon enough that sales are not apt to be frequent or easily adjusted for differences between the sold properties and the appraisal subject. Where rights are transferred with real estate, there is an additional possibility of determining the value of such rights by comparison with sales of similar property without water rights. The value difference should reflect the value of the water rights and of the extraction or diversion equipment, which must be separated.

There is another factor that has a bearing on the sale of water rights, particularly larger municipal or domestic rights. This is the fact that a privately owned public utility is under obligation to pay taxes as well as being regulated by the Public Utilities Commission. The municipality (tax-exempt) could afford to pay more for a water right that will be tax-exempt than a private corporation or individual could pay. However, if the market is being established in the area by sales to municipalities, these sales should be recognized. It is difficult and sometimes impossible to state confidently what a knowledgeable owner of such water would demand for it, or what an individual or private corporation would be willing to pay.

CAPITALIZATION OF INCOME

The capitalization of income method of appraisal is sometimes difficult to apply because the earnings of a water user are dependent upon the use of physical property (canals, pumps, etc.) as well as of the water right, and the segregation of income due solely to the water right is probably arbitrary. However, water rights may be leased and such rental income can be capitalized into a good indicator of market value.

The first step in applying this approach is to determine the annual gross income of the total property. From the gross income should be deducted the operating and maintenance expenses. The present worth of future net benefit is obtained by capitalizing the residual net annual income for the life of the water works at a fair rate of return plus an allowance for taxes. The value of the land, ex water rights, must then be deducted to obtain the value of the water rights. An example follows.

EXAMPLE III TOWN WATER COMPANY

Appropriative right for diversion equals 2 cubic feet per second year round. (One cubic foot per second equals 448.8 gallons per minute equals 646,317 gallons per day equals 1.98 acre-feet per day.)

Residential Service Connections = 300	
@ \$60/Yr./Connection = 300 x \$60 =	\$18,000
Commercial Connections = 40	
@ \$120/Yr./Connection = 40 x \$120 =	<u>4,800</u>
Gross Annual Income	\$22,800
Operating and Maintenance Costs	
Power	\$1,200
Salaries and Wages	12,000
Repairs	500
Supervision	<u>800</u>
Total	<u>14,500</u>
Net Operating Income	\$8,300
Economic Life of Water Works = 30 Years	
Income Imputable to Plant	
RCLD = \$25,000	
Capital recovery factor @ 14% (12% + 2% Taxes) for 30 Yrs	
$\frac{1}{\text{PW of 1 Per Annum}} = \frac{1}{7.003} = 0.1428$	
\$25,000 x 0.1428	\$3,570
Income Imputable to Land @ 14% (12% + 2% Taxes)	
Market Value of Land = \$20,000	
\$20,000 x .14 =	<u>2,800</u>
Total Income to Plant and Land	<u>\$6,370</u>
Residual Income to Water Rights =	\$1,930
Present Worth in Perpetuity @ 14% (12% + 2% Taxes)	
\$1,930 ÷ 0.14 = \$13,785	
Residual Value of Water Rights (Rounded)	<u>\$14,000</u>

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